

October, 1987

Issue #28

Free

Review of the Edmonton Atari Computer Hobbyists

EDITORIAL:

Welcome to another REACH, everyone! Hope you enjoy it.

As you have presumably noticed by now, there is no cover illustration this month. Doesn't anyone draw anymore? Or are all the copies of DEGAS ELITE sold in this city being used as paperweights? Just about anything is applicable - it doesn't have to be computer related. How about it, eh?

Concerning this month's articles, one of them is a reply to Mike Brown's review of Turbo BASIC in the August issue... from another editor! Gordie Meyer, editor of runes (the newsletter of M.A.G.I.C. in Iowa), is a big fan of Turbo BASIC - a big enough fan that he had to write us an article to defend this public domain language. Gordie also sent us a booklet that compiles numerous RAM upgrades and other modifications for the 8-bit computers. It should be available at the meeting for viewing, and if people are interested, we can order several at a time (for a small price) and save on postage.

Also this month is a construction project (black and white output to a TV from an ST monitor jack) from Jeff Lewis, as well as the conclusion of his series on piracy. I hope that all of you have found these articles interesting and informative. I don't think we reached the point of overkill, but over the last 5 months the subject has been covered pretty well. We'll just have to wait and see what the future holds...

Re: the postal strike. Mail is supposed to still be moving fairly well, to my knowledge, so we will still be mailing to members who can't make it to the meeting. Hopefully, they'll get through.

That's all for this month. Until next time...

Phil

E.A.C.H.

E.A.C.H. is an independent non-profit society formed to provide information and support to the Atari users of Edmonton and area. The club meets at 7:15 p.m. on the first Tuesday of every month, in room U116 of the Central Services Building at NAIT. See the map on the inside back cover for details.

NEWSLETTER

Articles and inquiries pertaining to this newsletter may be sent to:

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Attention Non-Members!

The Edmonton Atari Computer Hobbyists would like to give those readers who are not currently members the opportunity to join our users' group. Benefits include higher access levels on the BEACH, the club's BBS, which provides members with an electronic sounding board and public domain files online. Monthly meetings are held the first Tuesday of every month, giving Atari owners a chance to meet others who share their interest. Also found at these meetings are tutorials and workshops on such subjects as languages, data bases, and modems. E.A.C.H. members get a 10% discount on software at Computer Works and a 5% discount at Trade & Play. As well, there are special deals arranged for club members for cheaper modems, software, and printer paper.

For those readers who are not presently members of E.A.C.H., you may join now by paying the 1988 \$24.00 membership fee and get the rest of this year free - that's a \$6.00 savings. If you can't make it to the meetings, the newsletter will be mailed out to you; you'll gain full member access to the BEACH BBS; and the discounts alone could save you your membership fee. To join, see Maurice, our Treasurer, at the meetings, call him at 456-2521, or write to him at 92 Lorelei Chase, Edmonton, Alberta. See you at the meetings!

Turbo-BASIC

An Alternative View

by Gordie Meyer - MAGIC

Turbo BASIC is a public-domain BASIC language written in Germany by Frank Ostrowski, author of GFA BASIC for the ST. It was originally published in the German magazine *Happy Computer*, which is where the title screen graphics come from.

Turbo BASIC has many additional commands and features not found in Atari BASIC, as well as none of the serious lock-up bugs. It is somewhat larger than Atari BASIC, but actually allows more RAM space for programming. The reason is that Turbo BASIC "hides" part of itself under the Operating System memory. Unfortunately, that is the same place SpartaDOS resides, so the two are incompatible. But as most of us will boot directly from the Turbo BASIC disk, which has Atari DOS 2.5 on it, not having SpartaDOS shouldn't be that great a problem. By the way, Turbo isn't compatible with SmartDOS, either.

The true beauty of Turbo BASIC lies in using it for programming, not to run existing BASIC programs. It is backwardly compatible with Atari BASIC, with the exception of a few syntax problems. (The multiple NEXT problem, and a problem with array variables. More on those, and ways to avoid them, later on.) That means you can run existing BASIC programs with Turbo, with an increase in speed of execution. Personally, I don't have a great deal of use for screamingly fast execution speed, so that isn't why I like Turbo so much.

Turbo BASIC gives you program structures that Atari BASIC does not. For instance, you can use a WHILE... WEND loop or a REPEAT... UNTIL loop or even an IF... ELSE... ENDIF fork instead of a FOR... NEXT. There's even a DO... LOOP structure. In addition to subroutines, there are procedures, much like those in other languages.

If you don't program, you may be thinking, so what?

But all the additional options allow for more flexible and understandable programming. I seem to work on a program for a while, put it away, then come back to it. When I was limited to Atari BASIC, it was a nightmare. I never seemed to be able to pick up just what it was I was doing the first time. But with Turbo BASIC, I can section off procedures with a "--" statement (it puts a line of 30 "--"s on the program line, creating a visual break that makes it simple to see where the program segments are) and I can renumber anytime I need to. I can delete program lines with a single direct mode command. I can get a dump of all the variables I've used, what their values or dimensions are, and (for procedures) what line they start on. I can do a trace when I run a program to see what program line is being executed as it's being executed. I can CLOSE all 7 IOCB numbers with one word. I can turn off all 4 sound registers with one word. I can PAUSE instead of doing an empty FOR... NEXT loop. When I LIST the program, it indents for loops and procedures, making it simple to pick out open loops and screw-ups.

And there is LOTS more! Granted, many of the features are available in little programs you can load in, but these are all resident in Turbo BASIC. It makes BASIC programming infinitely more pleasurable.

The compiler I use has English prompts (sector editors are marvelous things) and compiles more existing BASIC programs than any of the other BASIC compilers on the market. Of course, you need to include the RUNTIME.COM on the disk as AUTORUN.SYS, and name your compiled program AUTORUN.CTB to make it autoboot, but that's simple.

Actually, you can autoboot a BASIC program by naming it AUTORUN.BAS and including it on the disk with Turbo BASIC as AUTORUN.SYS. Another nice feature that's built-in.

Turbo-BASIC

I use Turbo-BASIC a lot and have found it to be an extremely useful language, particularly in debugging and reworking programs. And, of course, the price is right.

Two problems that some people have when compiling a BASIC program with the Turbo Compiler are having more than one NEXT statement for a FOR, and using a mathematic equation to fill an array location. Both problems are easily circumvented. When multiple NEXTs are needed, replace all but one with GOTOs for the line the remaining NEXT is located in. For example:

Not compilable

```
100 FOR X=1 TO 5
110 Y=X*RND(0)
120 IF Y>10 THEN ? "OKAY":NEXT X
130 IF Y<10 THEN ? "NOPE"
140 NEXT X
```

Compilable

```
100 FOR X=1 TO 5
Y=X*RND(0)
IF Y>10 THEN ? "OKAY":GOTO 140
IF Y<10 THEN ? "NOPE"
NEXT X
```

Not Compilable

```
10 DIM A(3)
20 A(1)=1
30 A(2)=2
40 Q=A(1)*A(2)
50 A(3)=Q
```

Compilable

```
10 DIM A(3)
20 A(1)=1
30 A(2)=2
40 A(3)=A(1)*A(2)
```

Virtually any programming problem has a way around it. The power of Turbo BASIC and it's compiler make it worthwhile to figure them out the few times you encounter them.

ST Ramblings

Data Pacific has released their latest version of the Magic Sac driver, 4.52, which is a leap forward in usefulness. Added features include full hard drive support, and much improved support for colour monitors. 800 K disks in fast read format are supported, reducing the need for so many disk swaps.

The ST is finally making some headway into the educational institutions, thanks to a new discount program for post-secondary students, teachers, and schools.

Microsoft Write is about to be released, and a Beta version is already circulating about. Word Perfect is at the same stage.

The new version of V.I.P. (1.2) is now out, and the text version is also available, much improved, and faster.

The Supra 2400 baud modems are reaching Canada as of this writing, and are selling for the \$350.00 price range. Atari's 1200 baud modem is also on the immediate horizon, apparently in the \$175.00 price range.

A truly superb CAD drafting package is now available in Edmonton, called Draffix. Finally, a complete and professional package. Files apparently are compatible with the same software on the PC-XT and AT.

It is rumoured that Atari has a new representative for Alberta, as of October. He apparently is currently working as a salesman at an Edmonton dealer, and his name begins with D.

No final word yet on the Blitter, or new ROM's, but looks like VERY soon.

Interesting new games:

Terrorpods, from Psygnosis.
Midi Maze, from Hybrid Arts.

Have an intereSTing day!

Maurice Hilarius



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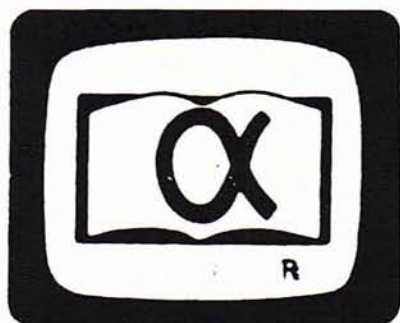
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Computer Products

ATARI EXPRESS: PIRACY

by Jeff Lewis

Copyrights and so on...

Two months ago I discussed where copyrights came from and what they were intended to accomplish. Last month I talked about the points of view held by both those who make software and those who copy it. This month, I'd like to finish this with a discussion of just what the reality of the software industry is, and where it may go.

Books, records and greed:

Books, records and the software industry share a great deal in common. They all rely heavily on repeat sales. They all rely on easily reproduced material forms. They rely on providing customer satisfaction and ensuring that the customer has access to the goods.

It's a reality of life that when people want something and it is theoretically possible that the item should be available, but access to the item is denied to them, they will find alternate ways of acquiring what they want. If the only way they can get it is illegally, if the need (perceived or real) is great enough, they will acquire it.

Note that I say nothing about the ethics involved. The copier is not going to be running by your rules; he may not even be running by his OWN rules. Desire (as a certain play/movie puts it) is a harsh master.

Book publishers devised the most sensible solution to this problem of ability to acquire and that was to create a mass market version of books. There are hard-covered trade releases for those who prefer such things and can afford them, and then there are paperbacks. It was obvious that the majority of book buyers had no interest in the higher quality of a hard-covered book, but rather wanted to buy a book inexpensively, read it, and then throw it in a corner to ignore.

Rather than ignore that segment, or consider them beneath their effort, book publishers found a perfect solution: the paperback. Cheap and disposable. Small markup on each book, but they are sold in the hundreds of thousands and so the profit adds up.

The record industry did a similar thing by releasing the 45RPM records intended for juke boxes to the public; instead of having to buy an entire album for a few songs of interest, the consumer only had to buy one or two 45's. Better yet, consumers would pay more per song than they would for an album; but from the point of view of the buyer, they would save money because instead of paying for an entire album, they could pay by the song. Cassettes represented another gain for record companies when the price per unit to manufacture dropped yet the price per unit to sell stayed the same.

However, there are many cases where copying is more practical, and while both the book and record industry would rather you not do that (the record companies frequently bemoan the death of the record industry due to cassette duplication of purchased records), it is generally accepted that people will make copies of songs on dub tapes so they can listen to those parts they like. Then there are people like myself, who buy a record, copy it onto a tape, and then shelve the record and listen only to the tape in order to keep the record "alive" longer.

With books, it is commonplace to copy parts of books to make notes on when writing in the book is not desired; furthermore, this practice is even given tacit sanction by government agencies who have allowed photocopy devices in public libraries. It should be fairly obvious that a very common use of these photocopy devices will be to copy parts of copyrighted materials. While a large clear sign is posted (usually) that warns that this is illegal, only a seriously naive person would have any belief whatsoever in the efficacy of these

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signs.

Segueing to the software industry, we find an even greater problem than those found in the other industries. Unlike records, books and to a great degree videotapes, which all rely on highly compatible carrier systems, every computer system and many so-called clone systems are very different. No two different machine can generally run the same software unless it is designed to run on these particular machines.

Thus, unless the manufacturer is willing to take the time and effort to make the software available for ALL machines (or at least all machines that can reasonably run that software), there will be many people unable to have access to the software that they perceive to be necessary.

Furthermore, there is a saddening apathy among users towards learning. There is even a whole pseudo-culture that has grown around these "power-users" who pride themselves on their ability to use software that programmer have spent much time making easy to use. (Sort of like being proud that you can make a mark with a lump of dirt.) This translates into people who are not only willing to pay ridiculously high prices for software, but are proud of this cost (this behaviour is directly echoed in the "Rolls Royce" Syndrome.)

The upshot of this attitude is that totally unrealistic expectations of financial gain for the software developer become the norm. When you see second rate software like "Crosstalk" or "dBase III" touted as the best, and such totally incomprehensible things as Byte's current "the 80386 is better than the 68020" series of articles (more on that later), and the bizarre review that PC Magazine did comparing all available desktop publishing software for the IBM-PC, which admitted that Ventura Publishing (which uses GEM, the ST's graphical interface) was the best and then totally ignored it in favour of the Microsoft Windows based

programs, you begin to realise that the normal theoretical driver for markets is lost.

What this means to us as owners of Atari ST's is that we have a machine which is very inexpensive. That means that the viewed acceptable margin of cost for a product is low. If you only paid \$1000 for the computer, then \$500 for a spreadsheet is not going to be seen as a reasonable price. If you paid \$4500 for the computer, then it is reasonable.

This results in a sad reality: most software developers would rather write for the IBM and Mac markets than for the ST. Further, most retailers would rather carry IBM and Mac software than ST. Even the Amiga, which is generally considered a "home computer," gets support by large dealers because it has (or rather had) a high enough price that the potential for reasonable profit margins existed, even if little software did.

In a similar vein, if we switch to the IBM market for a moment, we find the cheap clones. The software that WAS reasonably priced for a \$4500 IBM is NOT so for an \$800 knock-off.

The stage is now set: some computer owners who perceive that they are being ignored by the software developers (and this paranoia only being fueled by the irresponsible statements of people like Trip Hawkins of Electronic Arts fame) and others who, having saved a bundle on a clone, now realise that they cannot afford the software they need and see no practical way to get it.

Whether you like it or not, that is where the vast majority of home computer owners sit. So, while it is totally illegal, and for the most part morally unfair, they see few alternatives to copying. They see many ads for software that looks so appealing, only to find that they can't afford it. Worse, they know from experience that after saving up for it, the odds are that, even if it was available for their machine, when brought

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home it won't work on the equipment setup they have. It only takes one or two such occurrences and even the most honest of users begins to see copying as a valid form of self-defense.

Where do we go from here??

First, let's be honest. Copying happens. It has from day one, and will as long as we have the system of resource distribution we use today. We can deal with it two ways: fight it into the ground, or accept it and work out a way to minimise the loss.

The first was tried with copyguarding. It was a dismal failure, just as copyguarding was on home video tapes. Now we're seeing the guilt trip approach which the music industry tried with no success at all. We're also trying the "legislate them into the ground" approach which was tried in the video industry, the music industry, and the publishing industry with equally complete failure.

The music and movie industries have hit upon the best solution so far. They have proposed a surtax on each video tape, VCR deck, blank cassette, and tape deck that would be collected from either the retailer or the manufacturer and then distributed to each video and music manufacturer based on sales.

I have now heard that a similar system for photocopies is about to be introduced in libraries, which will require them to keep track of the photocopies used and the borrowing rates for books, and then pay a royalty to a pool which would distribute this collected fee to the various publishing firms on the basis of use.

What I propose is the same system for computers: a surcharge on each disk and drive sold that can be collected and distributed as it would be for books and tapes.

While this would not make copying legal, it would take the pressure off the

software manufacturers to try and stop home copying and allow them to concentrate on those people who mass duplicate and then sell their ill-gotten goods.

The sister industries have seen the logic in this approach. I hope that ours can learn from the follies of those who have gone before us and save us all the time, effort and bad relations that we've gone through in the past with video tape copyright wars and photocopy wars and simply jump ahead to a workable solution.

A final note: "The My CPU is Better Than Yours Syndrome - Part II"

Byte has published a series of so-called benchmark comparisons between the 68020 in the Mac SE and Mac II, and the 80386 in the IBM PS/2-80 and the DeskPro 386. Being little more than a hype piece for the IBM/Intel line and the 80386 (which IBM fanatics have been touting as the "Great New Standard CPU"), and while even admitting themselves that they could not explain many of the differences (which they suspect had to be chalked up to differences in compilers, architectures or operating systems), they still ended it all with "but given what exists right now, the 80386 is still faster."

The really irritating part to all this is that the comparison is unfair. The 68020 was intended as competition for the 80286, against which it does perform spectacularly. If they wanted to be fair, I propose that they run a comparison in bare CPU boards in assembler, from scratch. I suspect that in that environment, freed from the design penalties inherent in complex operating systems, they would both perform far better than they have been shown to. Furthermore, I think that a 68020 vs 80286 comparison would be far more realistic.

When the 68040 is released, let's rerun this "Byte Benchmark", and then see which CPU can really burn rubber.



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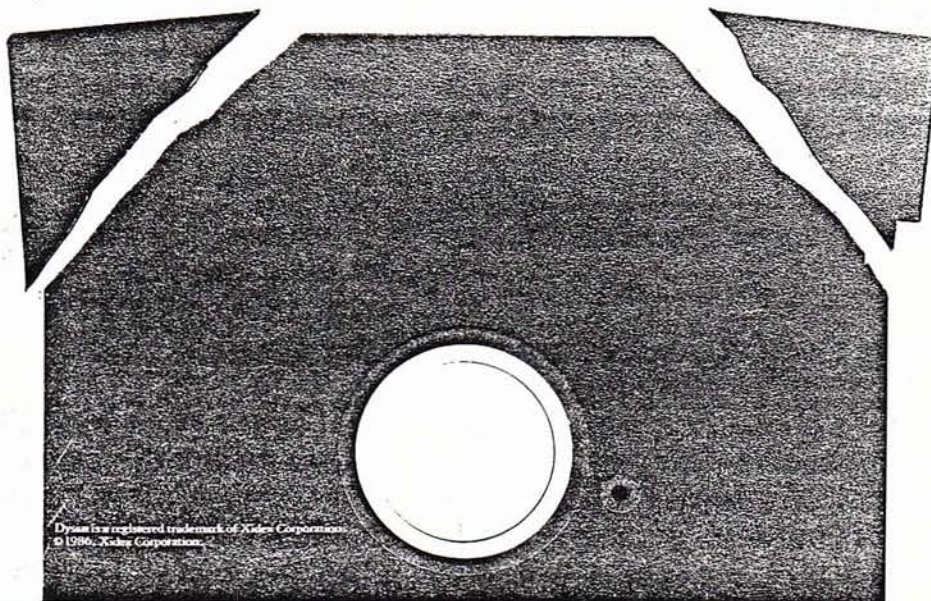
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AwardWare

Published by Hi Tech Expressions Inc.
For the Atari 8-bit
Reviewed by Larry Richards

(This article reprinted with thanks from the July 1987 issue of Dateline: Atari, the newsletter of the Brooklyn Atari Society.)

Atari 8-bit users have long bemoaned the fact that such programs from Springboard Software as The Newsroom and Certificate Maker are not available for their computer. Well, things are changing rapidly.

Springboard recently announced that they are converting The Newsroom to the 8-bit Atari and they recently brought out Certificate Maker for the Atari ST, but NOT for the 8-bit Atari. After using AwardWare for a while, and having a chance to compare it to Certificate Maker on the ST, my only reaction is that Springboard needn't bother.

Like Certificate Maker, AwardWare allows the user to print out awards and certificates, but unlike the Springboard program, AwardWare also lets him (or her) design and print out ribbons, tickets, coupons, checks, and more.

Completely menu driven, the program gives you a choice of designing regular "awards" or using preplanned "quickawards" (which are closer to what is used on Certificate Maker). The regular "awards" give you control over borders, graphics, seals, signature boxes, size and type of text, and the general shape and layout of the "award." This is much more control than you are given on Certificate Maker, which basically only gives you control over the border and the size and type of SOME of the text.

The 2 disks (both have Atari on one side and Commodore 64 on the other, which should insure that Atari owners will be able to

find this program almost anywhere) contain over 100 different types of awards, each of which can be manipulated considerably. This includes templates for ribbons, tickets, special coupons, scrolls, signs, keys, trophies, newspapers, checks, letterheads, memos, licenses and more. The versatility of this program is astounding. Without straining I can think of literally hundreds of uses for it.

Also contained on the disks is a selection of fonts, borders, seals, and graphics (with a promise of additional graphics disks to come). In addition to the printing functions there is a capability of making an animated disk to send to a friend and have it print an "award" on their printer!

If you get the idea that I really like this program, you are correct. The program is easy (and fun) to use - for both children and adults, genuinely useful, and it works (something that is not always true these days). It supports just about all major brands and models of printer (Certificate Maker would not run on my Epson LQ-800).

However, I've saved the best feature of all for last: the price. The list price of this program is only \$14.95(US)! And, it is NOT copy-protected.

If you've been waiting for Springboard to release the 8-bit version of Certificate Maker, wait no more. This one can do everything that one can and a whole lot more. Earlier programs from Hi Tech Expressions left a lot to be desired, but not this one. This one is a 100% winner. Rush out and buy a copy fast.

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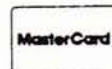


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ATARI EXPRESS: TECHNICAL SIDE

by Jeff Lewis

Closing in on the problem:

As many of you know, some time ago I vowed to produce a colour modulator for the old 520ST's (which came without an RF modulator) and the 1040ST's (which still do not). Unfortunately, due to quite a number of non-technical problems (life... don't talk to me about life...), this project has been put back and back. Once when it looked quite close, I hit on a technical snag, and things just never seemed to get back on track.

However, in the last few weeks, I have been able to devote some time to this project, and can now produce high quality black and white images on a television set using only a handful of common electronic components available at any Radio Shack. The colour modulator IS still in the works, and it is my hope to give you all a nice Christmas present. Until then, this modulator can be built in around 2 hours for less than \$10 and will run a lot of software very well.

Oh, before we go on... The requisite legal disclaimer:

Neither REACH nor Jeff Lewis give any guarantees for the circuit described herein. While tested and found to work, the safety and reliability of this project depends on your ability to work with electronic components and your ability to understand construction techniques. While every effort has been made to ensure that this is a safe and reliable product, any damages or loss caused by this product cannot be our responsibility. In short, use this at your risk.

Part I: The Explanation.

The Atari ST series is very similar to the IBM-PC in terms of the output generated for use by video monitors. There are differences, and these differences are what makes the ST a superior graphics machine.

On the monitor jack, there are three leads for Red, Green and Blue signal, and two more for Horizontal and Vertical Synchronisation. In a television signal, once every thirtieth of a second, a special signal is issued to cause the picture to go back to the top of the screen. This is the vertical sync (short for synchronisation) signal. Another special signal takes place every 63 microseconds or so, which is the time it takes for a single line to be drawn on the screen. This signal, called the horizontal sync, causes the picture to return to the left hand side of the screen.

The R, G and B signals (short for Red, Green and Blue) carry the actual picture information. On the IBM-PC, these are fixed at either 0V (volts) which is also called Gnd (ground) or +1V. A fourth line called I for intensity, not found on the ST, tells the PC monitor to make it dim (0V) or bright (+1V).

On the ST, the R, G and B lines are variable voltage and vary from 0V (off) to +2.4V (full intensity) with six additional levels between making up a total of eight levels from 0 to 2.4V for the eight intensities that each of the colours can be set to (0-7). With three colours, you can have eight times eight times eight or 512 colours.

In this project, we change the three colour signals into a single intensity signal which will have 512 different shades of grey ranging from black when R=0, G=0 and B=0 to white when R=7, G=7 and B=7.

Now, you may ask of what use is this if I want to run colour programs? Well, while you won't get all the nuances of a colour screen, it will allow you to run all ST software intended for colour monitors without a monitor. In most cases, the colour information is not terribly important, and since the greys are separated (and I'll explain how to adjust them for special cases), you will be able to use almost all the colour ST

ATARI EXPRESS: TECHNICAL SIDE

software with this circuit.

For those of you who can wait, the colour RF modulator circuit (which I assure you will be somewhat more expensive and complex) should be ready by Christmas. The simplicity and low cost of this circuit makes it a good temporary solution.

For some programs (PrinTechniks Video Digitiser for one - or if you plan on doing a lot of text processing), this is a better circuit than the colour modulator. Unlike the colour system where only eight greys are possible on a palette of sixteen colours, this allows sixteen different greys. For PrinTechniks and ComputerEyes, which normally display in grey scales, this allows for smoother and more accurate pictures. Both of these programs use each grey twice and thus throw away half of the information.

I was also surprised to discover that text with this circuit look crisp and very readable even in medium resolution. The tiny 6x6 print used for file names under icons were easily read without the blurring and smearing that is normal for the colour modulator.

Part II: Getting it together.

Right. First off, all of the components used are common and inexpensive parts. I've included a printed circuit board layout for those of you who are able to make these, and for those of you not so equipped, have no fear, a piece of designer perf board from Radio Shack will do very nicely.

I recommend Active Electronics for the parts (good price and they use real JAN part numbers as opposed to the weird internal part numbers that RS uses) except for the perf boards. Active is far too expensive for that.

Collect the parts listed in the parts list to the right of the circuit diagram in Figure 1. You will also have

to decide on how you want to make up a plug for this. If you can get a Sony plug (that impossible-to-get plug that Atari chose to use for no logical reason), then I recommend doing so, except that it is a misery to work with. An alternative is to by T-Pins (Active Part #56073) which go for around \$5.00 for a pack of 50 and can be pushed into a perf board to make a jack in about 5 minutes. They come with a nice tie on section that allows easy soldering.

Building a connector with these T-pins basically consists of first soldering twelve pins to wires and then getting a small piece of perf board and pressing these pins into the board. The pins should be pressed in from the non-foil side. Then solder the pins carefully to the board to hold them in place. I suggest soldering one row at a time. Finally, solder two more one row past the last (see Figure 6) which acts as a key. Pin 13 cannot be put on this board, as it does not lie on one of the holes, but it is a ground and is duplicated on pin 8.

Please note: all perf boards MUST have a hole spacing of 0.1" (one-tenth of an inch).

Ok, for those of you who are making up a PC board from the patterns, you know what to do. Remember, no drill holes have been printed on the pattern, so you will have to be careful not to damage the foil when drilling. The parts layout template shows where all the parts should go, so go to it.

For those of you using perf board, it's hard to give suggestions. This is not an interference critical circuit, so the exact layout is not critical. Your best bet is to lay it out much like the schematic. The circuit is flat and if assembled on the board more or less as it is on the schematic, you should end up with a fairly small and clean board.

One other note: the power for this circuit comes from Joystick Port 1.

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(Sorry, but that's the only place that has readily available +5V.) To access this power, you'll need a female DB-9 plug. Worse, since it's recessed, you'll need to pry the metal shell around the plastic insert of the DB-9 plug away which will cause it to fall into two parts which will then have to be glued back together with Krazy Glue. Unfortunately, most Atari joystick cables do not run the +5V line to the joystick (it's not used for the joystick). An alternative is to buy a pack of female DB-9 pins (Active Part #53113) and wire just one up and slip it on the right pin.

You will also need to make up a video and audio out cable. The simplest way to do this is to buy a normal stereo hookup cable with two male RCA jacks. Then cut the cable in two around the middle and strip the insulation. That will provide the two cables and ends you will need. Alternatively, you can buy coax cable or twin wire speaker cable and two male RCA plugs and wire your own. Coax cable is better for this project, but it is more expensive and is not absolutely necessary. Make sure you label which of the two cables will be video and which will be audio. Also, the center pin is the signal wire, the other is the ground. You can hook both ground lines together if you wish.

One final warning: the small tab on a transistor is over the lead which is the arrow in the schematic. The bar on the diode is on the side which has the lead corresponding to the bar on the symbol for a diode (D1-D3) in the schematic. Finally, the integrated circuit (U1) must be placed with the small notch facing the correct direction. The small dot is over pin one.

Now the bad news. This device is not an RF modulator. You will need an interface to convert the composite video (which this generates) to an RF signal. There are three common ways to do this: any home video tape recorder (VCR) comes with video and audio input jacks. Many newer televisions have "monitor capable"

inputs which are in reality the same video and audio input jacks, and finally, Radio Shack sells a home RF modulator which can be used on channel 3 or 4. Unfortunately, this will set you back around \$35.

Part III: Testing.

Once you have assembled it, testing is fairly simple. After the normal checking for shorted connections and improper grounds, the quickest way to test it is to plug it in.

All of the leads are protected so there is little chance of damage to your ST. Use a ohmmeter to check the connections to the monitor jack and to the joystick port plug, making sure that a solid connection has been made. Then plug the joystick plug into the second joystick port (the one not used for the mouse), plug the monitor plug into the monitor port jack, and plug the two RCA connectors into the VCR, monitor or modulator. Make certain that you plug the Audio Out jack to the Audio In plug on the VCR or monitor and the Video Out jack to the Video In plug on the VCR.

Turn the three potentiometers labelled Red, Green and Blue all the way to zero resistance (counter-clockwise) and the fourth potentiometer labelled Intensity to midrange.

Next turn on the ST. If all goes well, the screen should blank and then come up with the usual desktop in low resolution. If not, go back through the circuit and make sure you have not missed any shorts or broken connections. Try turning the Intensity potentiometer through it's range and see if that makes any difference.

Some suggestions: if the screen is totally black, then you have no signal going to the video. Check that the diodes (D1-D3) are in the correct way around, and that the transistors (Q1-Q3) are placed correctly. If you get a picture, but it is ragged and wavering,

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then there is a problem with either the two driver transistors (Q1-Q2) or with the 74LS00 integrated circuit. Make sure that they are oriented correctly.

If you have a picture which is clean and steady on the sides, but rolls, then it is transistor Q1 or the 74LS00 which has a problem. If it doesn't roll, but is ragged on the sides, then transistor Q2 or the 74LS00 is to blame. Finally, if you have a steady picture, but it is dim or washed out, then the settings of the Red, Green, Blue or Intensity potentiometers have to be adjusted. See the next section on that.

If none of these apply, then use a voltmeter to check the voltage supply from the joystick port and an ohmmeter to check the tracings on the board. This circuit has been tested, and is known to work.

Part IV: Setting it up.

Well, there are very few controls on this circuit and this was done on purpose. The Intensity potentiometer is the simplest and basically sets the brightness of the picture. Simply turn it until you get as bright a picture as you prefer.

The colour settings are a bit more complex. The grey scale that is produced depends on the settings of these three potentiometers: Red (R), Green (G) and Blue (B). The optimal settings for a 2,000 Ohm potentiometer would be 220 Ohm for Red, 1120 for Green and 720 Ohm for Blue. These values come from the CIE biases for even colour to grey translation (YIQ system) which was developed to make sure that two items of different colour with the same intensity will look different on a black and white television. Since we also wish to make certain that we do not run into a colour problem, we will use the same biasing. An alternative method is to set the Red potentiometer to 40 Ohms, the Green potentiometer to 640 Ohms, and the Blue to 2000 Ohms giving us a binary value

that should ensure a unique grey value for each of the possible colours.

Finally, for any given program, you may find that the screen is hard to see because the programmer has chosen two colours which work out to be very close when translated into a grey. If desired, the R, G and B potentiometers can be changed to accomodate these programs.

Part V: That's it!

Well, that's all there is to say about the B/W Video Generator. I hope you find it of use. If you have any problems, I can be contacted by way of the BEACH at (403)-450-1618, or you can write to me c/o Input. I'll try and answer your questions in the column. I can also be reached by way of the Edmonton RCP/M BBS at (403)-454-6093.

Finally, please let me know what you'd like to read about here. Would you like more technical material? More reviews, and reviews on what? Without your feedback, we don't know what to put here, and we are trying to give you a column that you are interested in.

A last comment... Byte has chosen to drop support of the Atari ST and Amiga computers in favour of total (and I might even say slavish) devotion to the IBM-PS/PC and the Apple Macintosh. Face it, we need another PC/Mac magazine like we need a good nuclear war. It is sad to see what used to be such a great hobbyist magazine go so totally preppy, but we still have Antic and Compute, as well as ST-Log and a fair number of others.

Now, if only we could convince some of the dealers in this city to CARRY them. Compute is producing a line of first rate ST programming manuals that contain all the data found in the Developers Kit, but far more lucid and better written. I've never seen them here, while I found (and stupidly did not buy) a copy of it in Calgary at Hot Soft. It's rough living in the boonies...

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Is There a Future for the ST?

In conversations with other Atari owners, the same question has arisen with amazing frequency: "Will the ST have a future as a 'Business' machine?"

Now that the Mega machines are finally on the market, complete with all of the design features that make it much more like the standard design accepted in the business community (detached keyboard, stackable C.P.U. and monitor, expansion on the bus for cards, etc.), it would appear that Atari is making a serious attempt to crack the acceptance barrier at least in terms of cosmetics.

But something is still missing: namely, a decent network.

Apple computers found themselves in much the same position with the Macintosh a couple of years ago, and realized that unless they addressed this need, they would forever be viewed as a "nice graphics machine, but useless in the office". So, without much wasted time, and accompanied by a major advertising campaign, they came out with AppleNet, to link the Macs and other systems together to allow some practical use in the modern office.

Until such time as Atari makes the step forward to support these requirements, we have to live with a machine that is burdened with the "game machine" image.

Let's explore other areas in which the ST lacks the ability to grow into a role of greater potential. Most other business machines are well supported in the areas of hardware expansion. For instance, an I.B.M. P.C., or compatible is basically pretty slow when it comes to arithmetic speed, but that is easily corrected with the addition of a math co-processor. The technology for the ST to maintain it's superiority in processor speed is readily available in the form of the Motorola 68881 math co-processor, but alas, no one has come out with any way to add one of these to the ST.

Two years ago, the ST was a pretty quick machine by most personal computer standards,

but since then MS-DOS machines with faster processors (the so-called "Turbo-PC's") have equalled and surpassed the speed of the ST, and at prices that are quite inexpensive. If someone wanted to, it should not be too hard to accomplish the same types of improvement with the ST, by the simple expedient of upgrading to a faster processor, such as the 68020, or the new 68030, but again, this has not happened.

So, where does the blame, and the solution to these problems lie? Well, the answer in both cases obviously lies with the Atari Corporation.

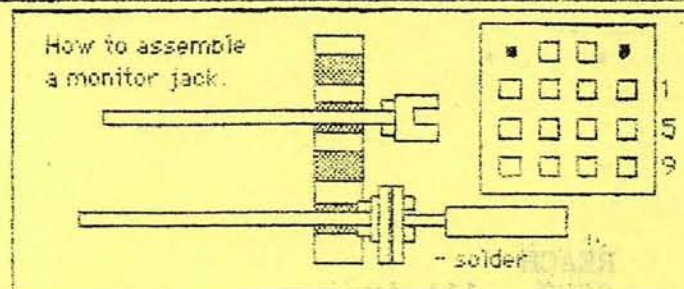
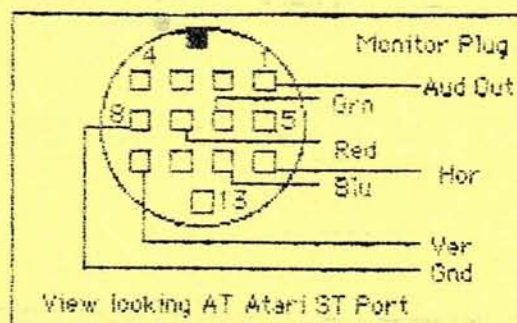
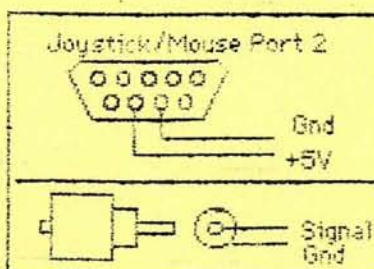
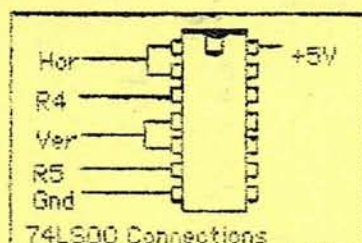
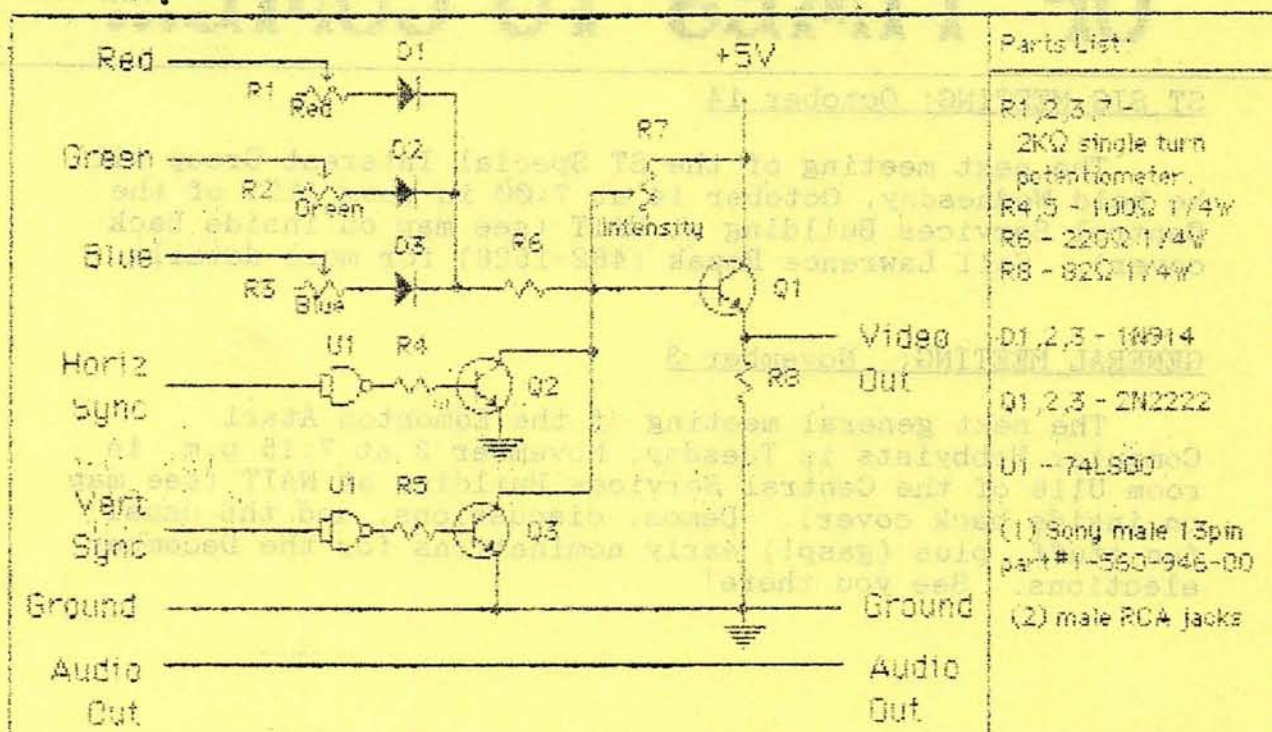
Fortunately, they have made some steps in the right direction, again with the Mega ST. Apparently, the new machine has a bus connection, allowing the use of an external box to hold hardware cards, such as I previously mentioned. But unless Atari takes the initiative, and actually designs and produces these devices soon, I am afraid they will slide quite quickly into the realm of so many other "nice try" developments, half way to accomplishing something significant, but not quite finished.

And, judging by Atari's seeming inability to release hinted at and promised co-processors, it doesn't look promising. For example, we have been hearing for quite awhile now about the AMII (a sound co-processor) and the Blitter chip (a memory control co-processor) but talk is cheap, and as of this date, at least, these things are still nothing more than dreams.

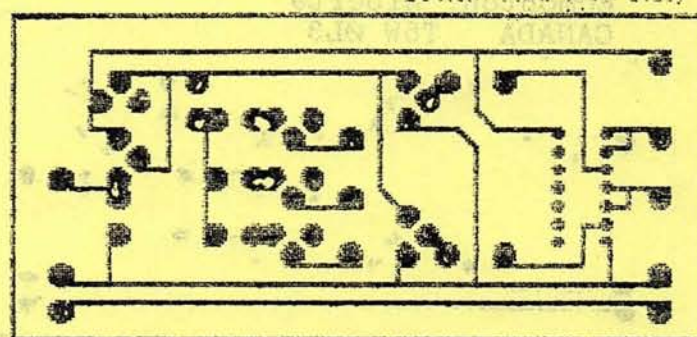
Perhaps I seem a bit disillusioned with the ST's lack of serious development, but if nothing else, it's still a pretty good game machine!

Sigh.....

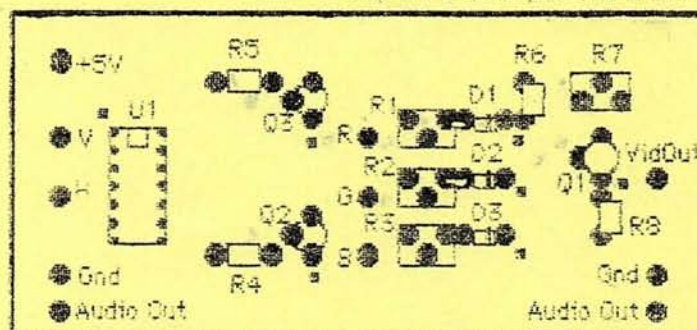
Maurice Hilarius



Bottom View (Front Side)



Top View (Components Side)



(Dots indicate pin 1 on U1, Arrows on Q1-3 and bar side of D1-3)

OF TIMES TO COME...

ST SIG MEETING: October 14

The next meeting of the ST Special Interest Group will be held Wednesday, October 14 at 7:00 in room A121 of the Central Services Building at NAIT (see map on inside back cover). Call Lawrence Rozak (462-1526) for more details.

GENERAL MEETING: November 3

The next general meeting of the Edmonton Atari Computer Hobbyists is Tuesday, November 3 at 7:15 p.m. in room U116 of the Central Services Building at NAIT (see map on inside back cover). Demos, discussions, and the usual fun stuff, plus (gasp!) early nominations for the December elections. See you there!

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